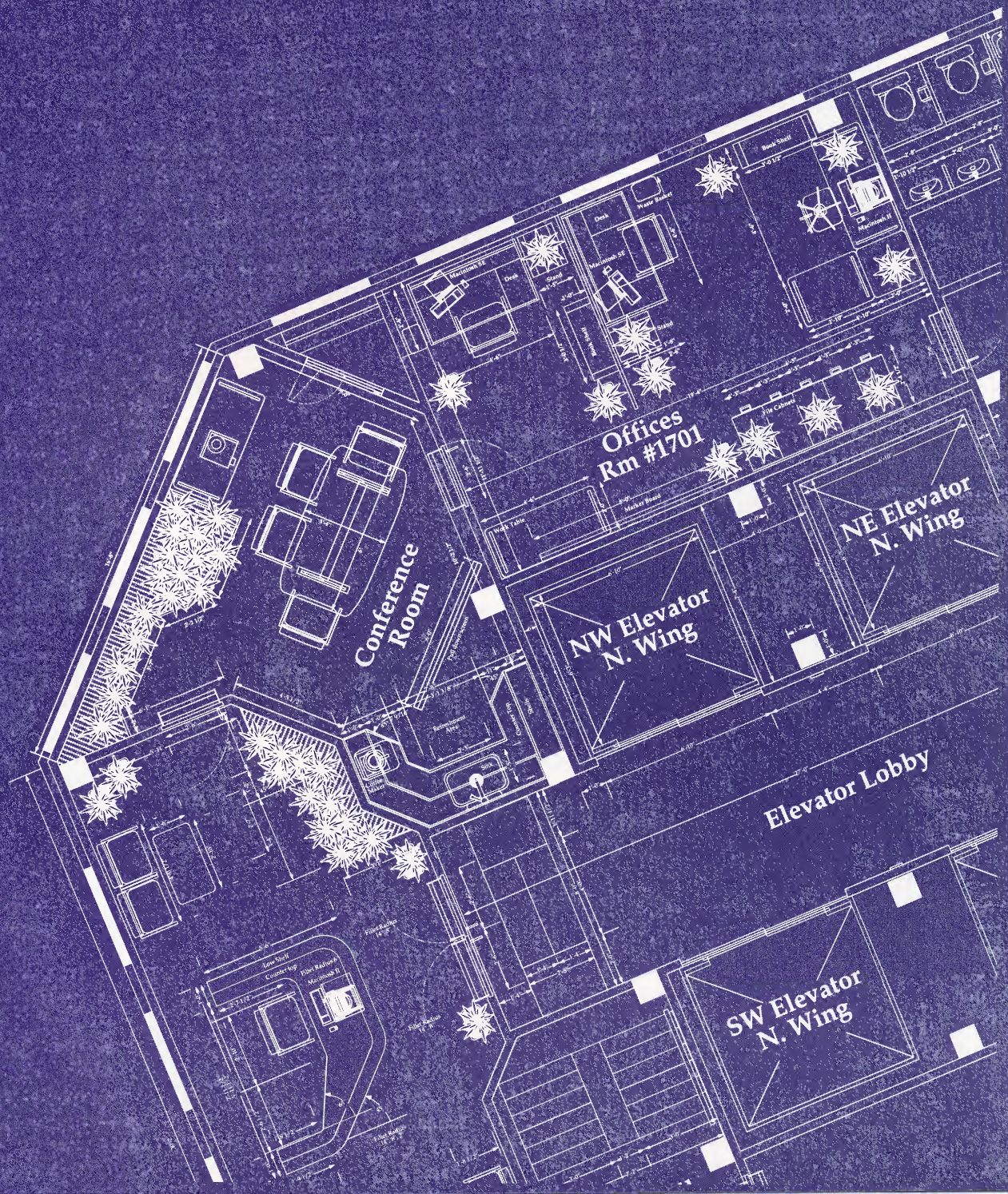


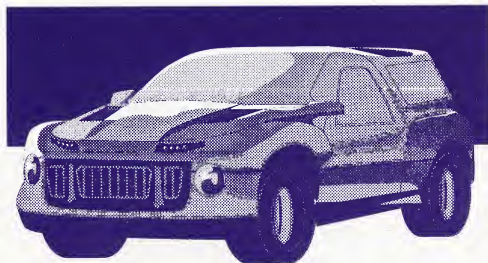
# BLUEPRINT





# BLUEPRINT

## A Treasurehouse



Simulation of the Torrero™ developed by:  
Vehma International

**B**lueprint is the complete answer to 2D drafting for *Architects, Draftsmen, Electrical, Civil, Mechanical Engineers and Technical Illustrators*. Never before have such power tools been assembled in such an easy-to-use format. Never before have such power tools been assembled at such an affordable price.

The challenge of creating complex shapes and layouts is a simple process for Blueprint. In the samples discussed here only a few of Blueprint's features are revealed. If you like these features, open this brochure to discover the treasurehouse of real user power that lies below the surface.

Blueprint introduces new tools never before seen in comparable CAD programs. Old tools have been given new dimensions and definitions to help you realize the new potential of what CAD can be. No longer do you have to pay top dollar for sophisticated 2D. And Blueprint comes with a 30-day money-back guarantee.

### The most advanced Duplication features of any 2D CAD package

The illustration to the right shows the power of Duplicate Array. In this layout of a gate cluster at an airport terminal only one of the terminals had to be created. Duplicate Array created the other three. Rectangular or matrix-like duplications as well as circular arrays can be used while resizing or rotating each copy automatically.

### The best Symbol capabilities in 2D CAD

The seats to the right were created as symbols. Rotation of symbols can be achieved while placing the symbols by holding down the mouse button and rotating the symbol to the desired degree. Other symbols used include computer terminals, door swings, schedule monitors and restroom utilities. Symbols are stored in an HFS-type environment in folders relating to their function. Symbols can even be accessed from libraries in other files.

### Unlimited Layers

The exploded detail in the upper right of the terminal is on another drawing layer. Blueprint allows you to make as many layers as you need, each of which can have its own scale and colors. Draw on different layers to avoid disturbing a base drawing—the layers will overlay with perfect registration. Layers may be turned on and off at will, allowing you to easily make several different views of the same document. For example, in a building plan, turn the floor plan and electrical system on, but turn off the plumbing and facilities.

### Curves of All Kinds

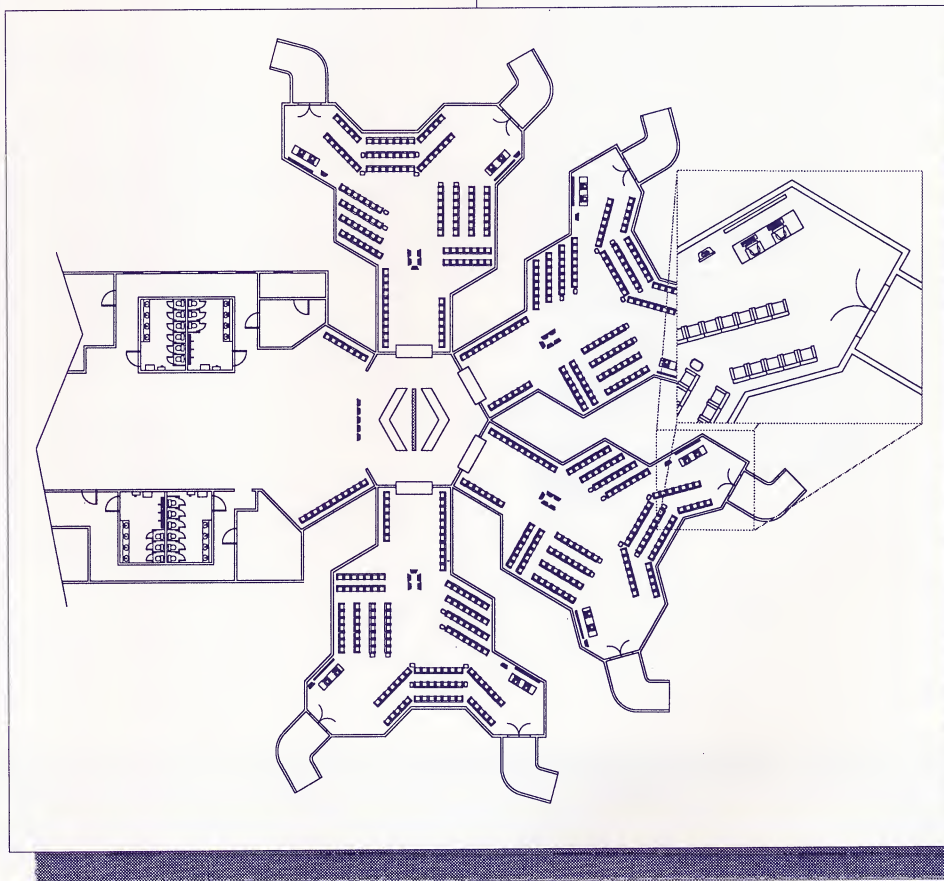
The Torrero, an automobile in development for the 1990s pictured in the upper left, shows the power of the program for the person who never draws a straight line. Fillets, cubic and bezier splines, and tangents can all be drawn with ease. Use our constraint palette to draw concentric circles. Develop dramatic 3D effects as in the auto without ever sacrificing the speed of 2 dimensions. The cubic spline tool allows the user to draw smooth curves. Like Adobe

Illustrator, Blueprint's cubic splines trace curves directly through the selected points; however, Blueprint's ability to calculate the smoothest curve eliminates the tedious task of editing individual points.

### Precision to Satisfy even the Engineer

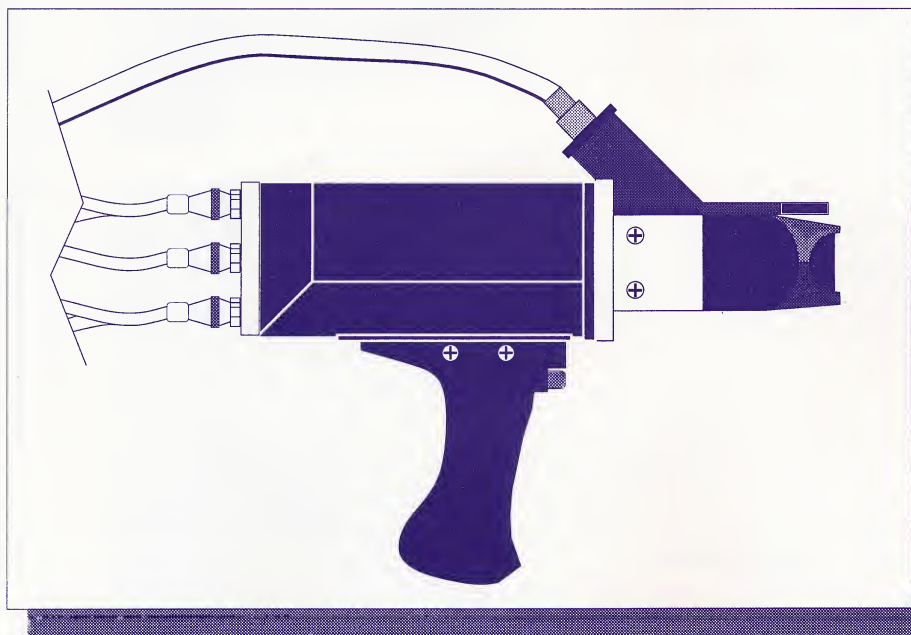
Engineers will enjoy the possibilities of Blueprint, whether they are working on an electrical component, building an engine, or developing a product such as the expansion rivet pictured to the right.

You can choose from a variety of unit measures and accuracies. Units can be fractional or decimal feet and inches, meters, cm, mm or whatever you want. When in decimal mode the accuracy can be set from .0 to .000000000. In fractional the accuracy can be displayed from 1/2" to 1/64" although the actual accuracy is much higher. Rotational accuracy can be set as fine as degrees, minutes and seconds. Origin points ((0,0) coordinates) can be set and changed at any time on the drawing. The program can move your objects with great accuracy using the move dialog box in cartesian or polar coordinates. This





# of Power at a Price you can Afford.



Simulation of the R-Lock™ expansion rivet developed by Phillips Plastics Corporation  
Engineered Fastener Division

makes positioning of parts or components computer perfect when the mouse is imprecise.

With Blueprint, you can draft using mouse, menus or keyboard entry of data. If you want, you can set different layers to different scales with no distortion. Hatching lets you fill any enclosed space with user-defined hatch and cross-hatch patterns. Set your own angles, spacing, and grouping.

## The Easiest Auto Dimensioning

Blueprint lets you do just about every form of dimensioning you can think of with ease. The bay window on the bottom right shows dimensioning between two points as well as witness lines, arrowheads, and text that rotates by degree. Change the size of the drawing, and the dimensions will change to reflect the new size.

## Create a Floorplan

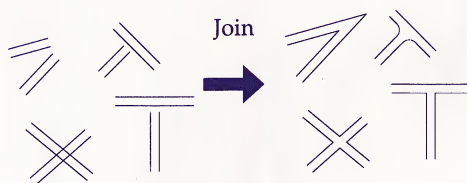
Use Combine to Surface to fill any enclosed area, be it four joined lines or a series of polygons, with a pattern. The dark areas showing the solid parts of the wall in the bay window illustration depict one way this feature might be used.

The double line feature of Blueprint is an exceptional tool. The distance between the lines can be set and changed at any time.

Imagine drawing a polygon to define any shape or room. When you are finished the polygon is encased in walls all at a user-defined thickness with the corners automatically mitered. This is what the double wall polygon tool can accomplish automatically.

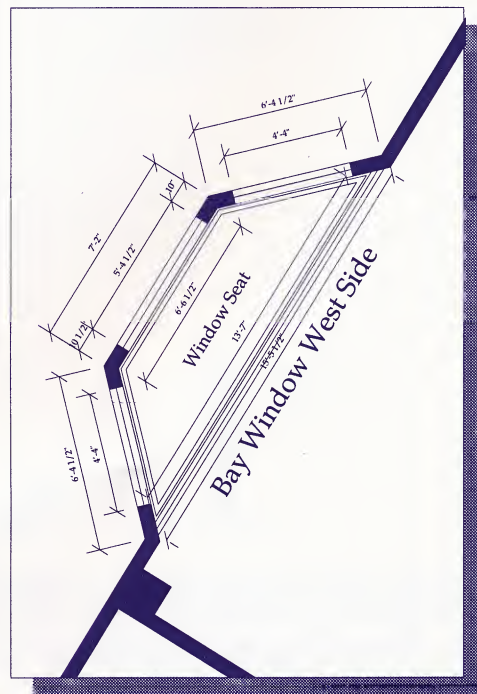
Double wall and double line thicknesses can be adjusted on the spot. These walls can be set to draw as lines, polygons or both.

After the perimeter wall is created, join works while you are creating the interior walls. Join automatically joins and cleans up a variety of intersections such as Xs, Ts and Vs.



## Your Blueprint for CAD Success

The preceding is the tip of the iceberg. Review the rest of Blueprint's features and compare them to Dreams™ and Claris CAD™, and you will agree with us that neither the power nor the price can match the Blueprint advantage. Blueprint is a very stable program with 3 years of beta testing and in-house debugging by a company with a track record of award-winning engineering software. Technical support is free of charge and available 8 hours a day, 5 days a week. The program is not copy-protected. The manual is comprehensive and definitive with mini-tutorials of each feature and a fully cross-referenced index. A DXF translator is included with the program. If you're still having trouble deciding, take Blueprint for a test drive. A demo copy is available for only \$19.00. It is the full working program with Save, Save to Clipboard and Print disabled. Remember, Blueprint carries a 30-day money-back guarantee so that you can be sure you're satisfied with the product. We assume the risk that you won't like what you see because we're certain you will. Order today for top quality 2D CAD.



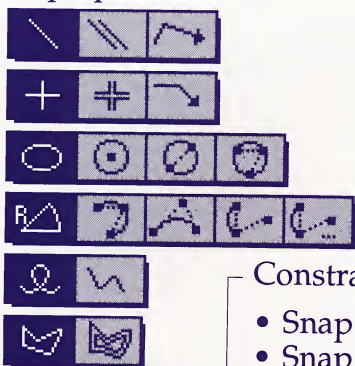
For more information write :

**Graphsoft** 8370 Court Ave. Suite 202 Ellicott City MD. 21043 •



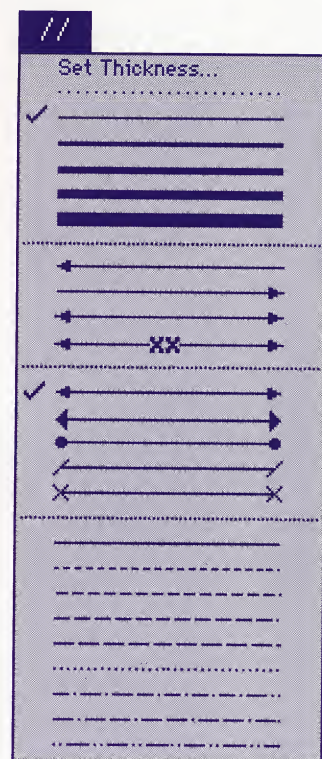


Pop up Tool Icons



Constraint Palette

- Snap to Grid
- Snap to Point
- Snap to Surface
- Snap to Intersection
- Snap to Distance
- Constrain Parallel
- Constrain Perpendicular
- Constrain to Angle
- Constrain Symmetrical
- Constrain Tangent

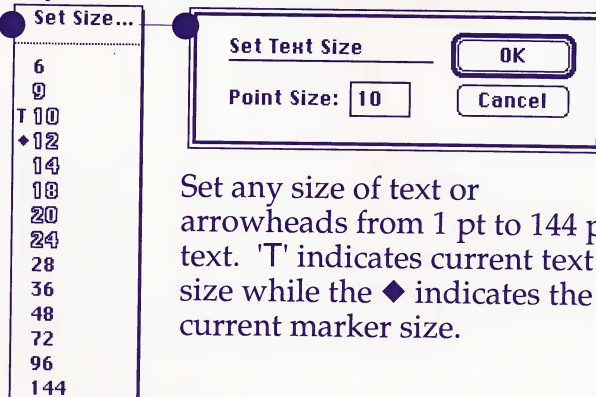


Set thickness of lines in points, mils or millimeter

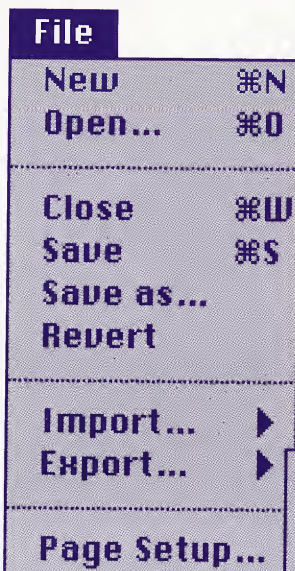
Choose from a wide variety of line and marker styles



All System Fonts are available under this menu

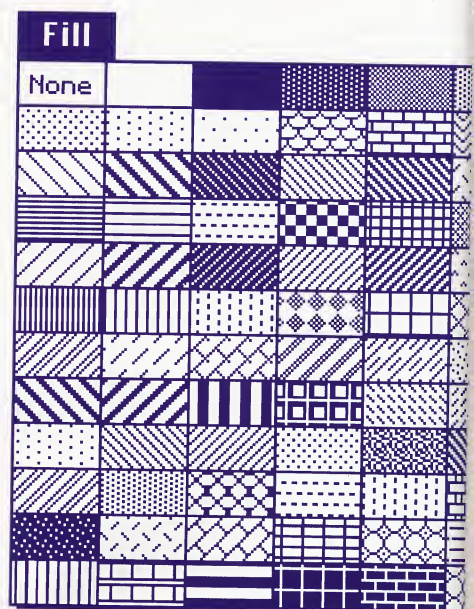
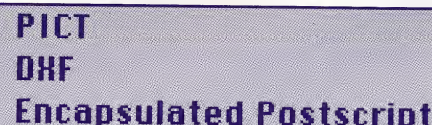


Set any size of text or arrowheads from 1 pt to 144 pt text. 'T' indicates current text size while the ♦ indicates the current marker size.



Standard Macintosh Interface

Import & Export in a variety of formats.





# BLUEPRINT

## Page

Normal Scale ⌘3  
Fit To Window ⌘4  
Go To View  
Save View...  
Delete View...

✓Snap to Locus ⌘7  
Set Grid... ⌘8  
Set Origin... ⌘9

Scale...  
Units...  
Drawing Size...

Tablet  
Thin Lines  
✓Tool Palette  
✓Constraint Palette

Besides the zoom tools in the palette Blueprint offers a wide range of viewing options. Blueprint also allows the user to save and recall views instantly.

### Unit #1 Closeup

Current Pen Grid: 1/16"

Reference Grid:  
☒ Show Grid Lines  
☐ Print Grid Lines

Double Line Separation:  
☒ Create Lines  
☐ Create Polygons

1/2"  
1/4"

OK Cancel

With set grid you control the pen grid snap to avoid rounding problems. Wall thicknesses or parallel line offsets can be defined.

Drawing Scale

Architectural:  
☐ 1/16" ☐ 1" ☐ 1"=10'  
☐ 1/8" ☐ 1-1/2" ☐ 1"=20'  
☐ 1/4" ☐ 2" ☐ 1"=30'  
☐ 1/2" ☐ 3"=1' ☐ 1"=40'  
☐ 3/4" ☐ 1"=100' ☐ 1"=50'

Engineering:  
☒ 1:1 ☐ 1:25  
☐ 1:2 ☐ 1:50  
☐ 1:4 ☐ 1:100  
☐ 1:5 ☐ 1:200  
☐ 1:10 ☐ 1:500

Enlargement:  
☐ 2H ☐ 6H ☐ 20H  
☐ 3H ☐ 8H ☐ 50H  
☐ 4H ☐ 10H ☐ 100H  
☐ 5H ☐ 15H ☐ 200H

Paper Scale: 1: 1.000000

☐ All Layers ☐ Scale Text

Cancel OK

Set Units

Unit Name: Fractional Feet & Inches

Display Accuracy: 1/16

☒ Min. Display Unit

Angular Accuracy: 0° 0' 0"

Custom...

OK Cancel

Custom Units

Style: ☐ Decimal ☒ Fractional

Accuracy: 1/1000

Displayed: 1/16

Unit marks:  
Label: 0° 0' 0"  
Spaced: 16 H

OK Cancel Defaults

Units use popup menus to quickly select from a

wide range of units and accuracies. If you can't find the unit of measure you are looking for, create it with the custom units dialog box.

10 1/2  
H  
0

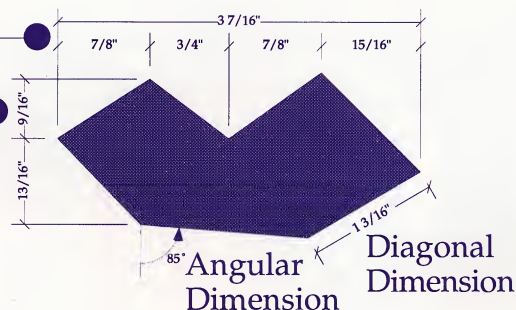
OK Cancel

Drawing size lets you choose the size of your drawing. By using the Chooser you can select a plotter driver, then via the Page Setup you can redefine the matrix to read as A thru E size drawings instead of letter, legal or tabloid size sheets. Blueprint displays the image or print area measurements not the paper size.

## Tool

Dimension H... ⌘H  
Dimension V... ⌘K  
Diagonal Dimension  
Angular Dimension  
✓Witness Lines

Add Surface  
Clip Surface  
Intersect Surface  
Convert to Lines



Convert any object or polygon into a series of

Editable

Non-editable



**Edit**

Undo ⌘Z

Cut ⌘H

Copy ⌘C

Paste ⌘V

Clear

---

Duplicate ⌘D

Select All ⌘A

Reshape ⌘R

Smoothing ▶

Mirror

Scale Objects...

Standard  
Macintosh  
Interface

**Print...** ⌘P

Quit ⌘Q

**Printer Resolution**

Horizontal 300

Vertical 300

OK Reset Normal

Page Setup allows the user to define the resolution for output and detects the resolution capabilities of your output device.

*Option Duplicate* invokes array duplication, a very powerful set of definable duplication options.

**Duplicate**

Rows: 1 Columns: 1 Alteration

☒ Rectangular Array  
☐ Circular Array

Offset

H Offset: 0" V Offset: 0"

☐ Next Mouse

☒ Resize Duplicate(s)

H Scale: V Scale:

☒ Rotate

Angle:

Cancel

**Reshape Box**

Size:

Height: 7.8 Width: 1 3/16"

Position:

H: -2 9/16" V: 1 1/4"

Align Point To:

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

☐ Next Click

Cancel OK

Scaling of individual objects vs the entire drawing.

**Scale Objects**

H Scaling Factor: 1.0000

V Scaling Factor: 1.0000

Cancel OK

Reshape allows point by point editing of polygons. *Option Reshape* allows reshaping by data box. Each data box is appropriate for the kind of object being edited at the time.

**Layers...**

Set Layer ▶

✓ Gray Other Layers

✓ Show Other Layers

---

Group ⌘G

Ungroup ⌘U

Enter Group

Exit Group

Top Level

---

Assign Class

Classes...

---

Create Symbol...

Select Symbol...

Symbol To Group

Edit Item Fields...

**Layers Setup** OK

Layer:

◆ Detailing

◆ Appliances

◆ Plumbing

◆ Electrical Fixture

◆ Floor Plans

Move: Top Up Down Bottom

Rename: Floor Plans

☐ Active

☒ Normal

☐ Grayed

☐ Invisible

Scale... Colors...

Transfer Mode: Paint

New Remove

Set visual attributes, scales, transfer modes and colors for layers.

Popup menu quickly activates any layer for editing.

Enter and Exit Group allows editing within grouped objects or symbols. Edit in places where once it was once taboo.

**Symbols**

Symbol Lib

Appliances

Doors & Window

Electrical

Unit #1

Edit Symbol...

Edit Fields...

New Folder

Delete

Move...

Rename...

Open Library Done

Create classes within a layer and then turn them on or off, creating layers within layers.

Create, store, and edit symbols in an HFS type environment. Rotate symbols as you place them. Symbols automatically rescale to fit the layer scale. Symbols can include text fields and registration points.

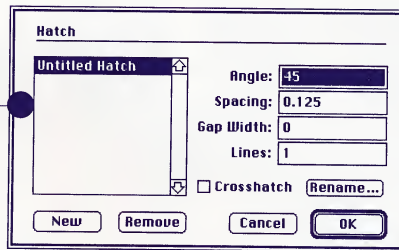


## Convert to Polygons Combine Into Surface

Join ⌘J  
Trim ⌘T  
Fillet...  
Intersect ⌘I  
Hatch...

Create, collect and name your own custom hatch and crosshatch patterns.

lines.  
Convert any set of enclosed lines into a polygon.



## Color

Fill Foreground  
Fill Background  
Pen Foreground  
Pen Background  
Put Down Colors  
Pick Up Colors

Use all 256 colors if you have an expanded color video card.

Use Layer Colors  
Use B & W Only

Rotate...  
Rotate On Screen

Rotate Left 90° ⌘L  
Rotate Right 90°  
Flip Horizontal  
Flip Vertical

Rotation can be as fine as °, ' and " for objects and ° for text. Menu selections make other operations a one step process.

Move Selection

H Offset: 0'  
V Offset: 0'

Ⓐ Cartesian Ⓐ Polar

If a mouse is not precise enough, move an object precisely in cartesian or polar coordinates.

Send To Front ⌘F

Send To Back ⌘B

Send Forward

Send Backward

Align Objects

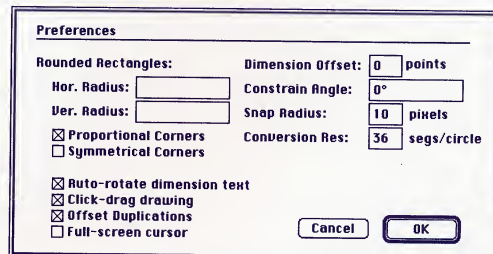
Ⓐ Left Sides Ⓐ L/R Centers Ⓐ Right Sides  
Ⓐ Tops Ⓐ T/B Centers Ⓐ Bottoms

Align objects quickly with each other or a locus point.

Preferences...

Lock  
Unlock

Customize the look and feel of your documents by making selections in the preferences then save a file to open as your template with all the settings preserved.



A display bar at the bottom of the screen allows keyboard entry for constraining and or defining an object while moving with the mouse. It can also be used just to monitor object's attributes as you draw.





# BLUEPRINT

Architectural Civil Mechanical Technical

## BLUEPRINT: CAD FOR THE TECHNICAL PROFESSIONAL

*Blueprint is a powerful 2D Computer Aided Design package. It offers high-precision, speed, ease-of-use, and reliability at an affordable price. Use Blueprint to design floorplans and landscapes, prepare technical illustrations, and draw everything from a motor to an electrical component to a block of skyscrapers with perfect precision. With Blueprint you get it all: quality, speed, and price.*

- **Accuracy**
  - Up to 1/64 display
  - Up to .000000000 available
- **Arcs**
  - By three points
  - Tangent to line
  - By 2 points and radius
- **Circles**
  - By diameter
  - By center and radius
- **Classes**
  - Visual attributes
- **Color**
  - 256 system colors (8 bit cards)
  - Object-by-object color
  - 8 colors for plotters
- **Combine to surface**
- **Dimension**
  - Chain Dimensioning

- Angular
- Diagonal
- **Duplicate**
  - Array duplicate
    - Offset
    - Rectangular
    - Circular
    - Resize and /or rotate
- **Enter Group**
  - Allows editing within groups
- **Floating palettes**
  - Tool Palette
  - Constrain Palette
    - Constrain to tangent
    - Constrain to perpendicular
    - Constrain parallel
    - Constrain to distance
    - Snap to intersection
    - Snap to surface
- **Formats**
  - Pict
  - Blueprint (high accuracy)
  - DXF translator
  - Encapsulated postscript.
- **Hatching**
  - Any angle
  - Cross hatching
- **Keyboard entry of data**
- **Layers**
  - Unlimited
  - Gray-out, Invisible, or show
  - Individual scaling
  - Multiple visual attributes
- **Lines**
  - Parallel lines
  - Tangent to circle
  - Trim Lines
  - Set Line thickness
    - Points
    - Mils
    - Millimeters
  - Set Line Marker style & size
  - Set line styles

- **Macintosh interface**
- **Mirror**
- **Offset Parallel lines**
  - User definable thickness
  - Auto miter
  - Join intersections
    - T, X, & V intersections
- **Origin**
  - User definable origin
  - Shift drawing with origin
- **Output**
  - Image-Writers
  - Laser printers
  - Linotrons
  - Plotters (Driver available)
- **Rotate**
  - ° of rotation
  - On screen rotation
  - User defined pivot points
- **Save View**
- **Scales**
  - Architectural
  - Engineering
  - Custom
  - Individual objects
- **Splines**
  - Bezier
  - Cubic

### • Surface functions

- Add to surface
- Clip surface
- Intersect surface

### • Symbol library

- Hierarchical
- Call from other file libraries
- Registration
- Text Fields
- Color

### • Tablets

- Use with High precision tablets

### • Units

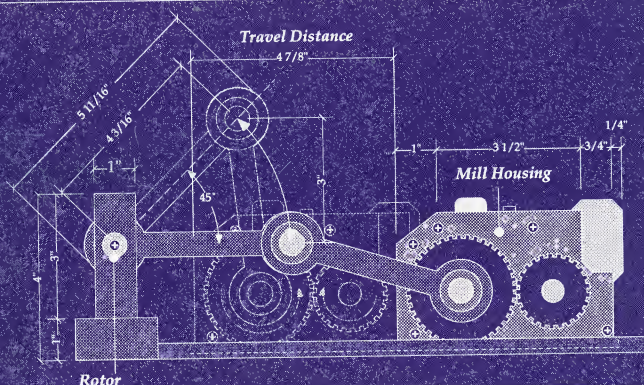
- Decimal feet & inches
- Fractional Feet & inches
- mm, cm, meters

### • Views

- Create and name views
- Delete and/or rename views

### • Zoom 1000 X in and out

And Much Much More...



Graphsoft





*Engineering and Professional Computer Applications*

---

Dear CAD user:

We are pleased to take this opportunity to tell you more about Blueprint 2.0, a comprehensive 2D CAD package at an affordable price. Blueprint provides absolutely the best value per dollar of any low-to-mid range CAD package on the market, bar none. Blueprint offers professional-level 2D CAD at an entry-level price, the kind of price other manufacturers offer only after they have taken out essential features, such as dimensioning or layers. Plus, Blueprint provides a host of high-end features found in high-priced software, such as a SmartCursor™, advanced duplication in arrays, scale by layer, a hierarchical symbol library and more. And it fully supports the new Macs, including the new 64 dpi monitor.

Our information packet includes:

- A fold out brochure which shows all the Blueprint menus. Peruse it to see that Blueprint is packed full of professional-level CAD features.
- A benefits "shopping" list: take it and compare what we offer to other CAD and drawing programs. Note that our \$295.00 package includes both the standard features one expects in CAD and features that other, more expensive packages, don't include--such as a built-in DXF translator, EPS compatability with Pagemaker, text that rotates by degree, the ability to create classes and even a one-step Join command, a feature associated with such high-end packages as Architrion, MacBravo and MicroStation Mac. Our Smart Cursor intelligent interface is unique at its price point--you can not get this state-of-the-art 2D feature in any other package priced below \$700.00. Too good to be true?--try us for 30 days and make your own choice.
- A price list

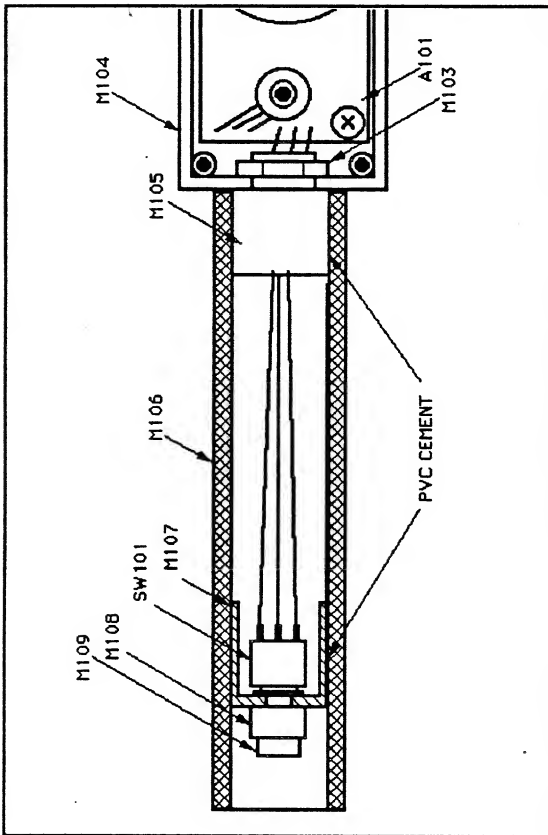
We support Blueprint through a technical services department that is open 9-5:30 Monday-Friday EST. We also publish a newsletter, which is sent to all registered users. Finally, we stand behind our program with a 30-day no hassles money-back guarantee. If you have questions after reading our literature, we will be glad to answer them for you. Please call us at 301-461-9488.

Sincerely,  
Graphsoft

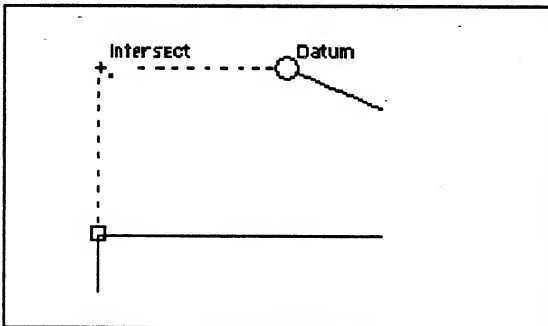
*Graphsoft 8370 Court Ave. Suite 202, Ellicott City, MD 21043 • 301-461-9488*



# BLUEPRINT



Blueprint's wide range of power tools makes it useful for the mechanical engineer who wants precise and detailed drawings.



The SmartCursor™ (also referred to as Screen Hints) offers verbal and graphical cues as you draw.

## Features

## Benefits

### Accuracy

#### SmartCursor™

Quickly create precise geometry using verbal and graphical cues to locate and snap you to midpoints, endpoints, centers, intersections, tangents, perpendiculars, accurate distances from a line or object and more.

#### User definable customizable units

Movable point coordinate system provides high degree of precision without sacrificing speed. Accurate to nine decimal places. Angles, distances and rotations in degrees, minutes and seconds

#### Zoom In and Zoom Out accurate to 1000n

You can draw a multi-story office complex and a detail of a kitchen faucet in the same document with no distortion and no rounding errors.

### Ease of Use and Flexibility

#### Enter data via mouse, dialogue box, or keyboard

Draw the way you want to draw or change drawing methods to suit your project.

#### Constraint palette

Set up rules so that your drawing tools do what you want as you draw. Makes a variety of snaps and drawing on angles easy. Modifies the actions of your drawing tools.

#### Scale by layer

Keep different parts of a project in one document—details can be in a different scale on a different layer and still accessed with complete ease.

#### Macintosh interface

Fill objects, add fonts, color, cut, paste, undo, make edits with ease. Full support of new Macintoshes, including 64 dpi monitors.

### Comprehensive Design Tools

#### A full kit of parts

Allows you to assemble any design with ease. Use your choice of methods to create lines, rectangles, ovals, circles, arcs, splines, fillets, polygons and more.

#### Automatic dimensioning

Dimensions automatically resize when you change object size. Dimensioning types include horizontal, vertical, angular, diagonal, orthogonal, chain and more.

#### Intelligent joins

Create walls with ease using the double line tool and join with auto-cleanup. Achieve perfect joins everytime with no editing required.

#### Full range of editing tools

Make modifications and improvements with accuracy and flexibility using array duplication, rotate, trim, intersect, add surface and mirror features.



|                                                          |                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Layers and classes; full support of CAD layer guidelines | Unlimited layers act as acetates, allowing you to overlay drawings in different scales or to work on one part of a drawing without disturbing other parts. Classes allow you to group objects according to standard Classification guidelines and to group together objects from different classes for a flexible working environment. |
| Hierarchical symbol library                              | Save drafting and searching time by creating reusable and editable symbols with a keystroke, then organizing them in folders for easy access.                                                                                                                                                                                          |
| Full text capabilities                                   | Load multiple fonts. Blueprint is fully ATM compatible so you can use the font you want. Rotate text by degree. Change size and type of text and arrowheads. Annotate drawings the way you want.                                                                                                                                       |
| Save View feature                                        | Go quickly from view to view using Save View. Better than scrolling, it's an ideal way to get from one part of a drawing to another, or to toggle back and forth between your notes in a text view and your drawing.                                                                                                                   |
| Object calculations                                      | Includes continuous tracking of cursor location. Automatically calculate area as you draw.                                                                                                                                                                                                                                             |
| Group/Ungroup                                            | By grouping a set of objects you can edit them all simultaneously, while not disturbing any other objects on your layer.                                                                                                                                                                                                               |

### Import/Export

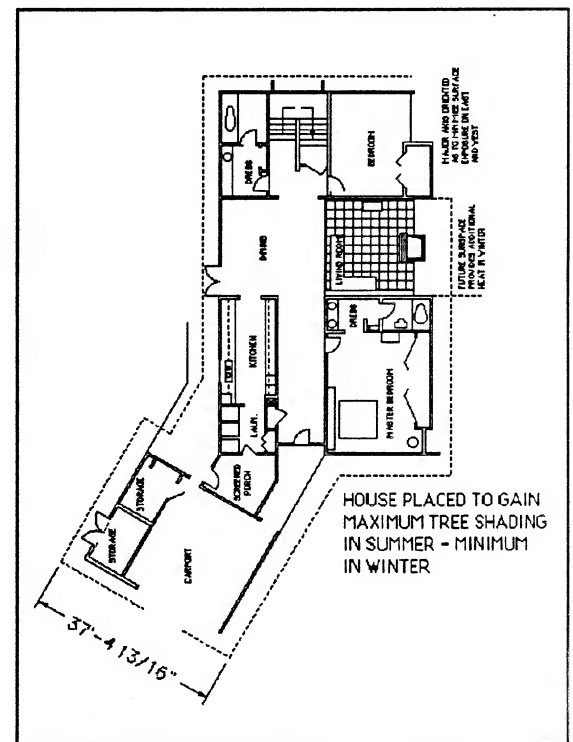
|                         |                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Built-in DXF translator | Save money by not having to buy an add-on product; protect your investment by sharing Blueprint drawings with other professional CAD programs   |
| PICT                    | Full file compatibility with any other standard Macintosh programs; do complex tasks easily in Blueprint and paste results into other software. |

EPS Export to PageMaker™ and Quark Xpress

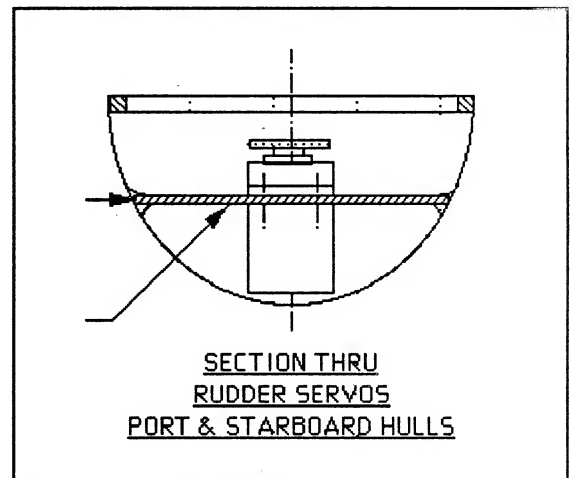
Do technical illustrations with ease in Blueprint then port the results at high-resolution into industry standard page layout programs.

### Services

|                                            |                                                                                                                                                                                                                                     |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unlimited technical support M-F 9-5:30 EST | Getting the help you need is as easy as picking up the phone and calling. You pay for the call, but you'll never be lost in phone mail and you'll never be billed for a call. Graphsoft tech support is knowledgeable and friendly. |
| Newsletter                                 | Get up to the minute tips and news in our Graphsoft Dispatch when you send in your registration card.                                                                                                                               |
| 30-day money back guarantee                | Graphsoft assumes the risk. If you don't like the program just return it within 30 days and get a no hassles refund.                                                                                                                |



Draw detailed floorplans complete with diagonal dimensions, fills, rotated text, arcs, double and dashed lines and more. Symbol creation makes the task easier.



Zoom in on a detail for more precise work...And remember, Blueprint is fast on the new Macs and the old Macs, even without a math coprocessor!





Engineering and Professional Computer Applications

## LET OTHERS SPEAK FOR US



review, July, 1990 MacUser.

"Blueprint...stacks up favorably against ClarisCAD...Blueprint...handles layers, symbol libraries, and auto-dimensions with aplomb....With its focused approach, that long list of features and options, DXF import and export built in, quick performance, and small hardware demands, and lower price...Blueprint should be a serious contender in 2-D drafting." Phillip Robinson, MacWeek, November 7, 1989.

"Blueprint is a midrange 2-D CAD program from Graphsoft, maker of MiniCad+. Its control over colors as well as pattern fills is excellent. It's reasonably priced and performs well even on 1-mega-byte machines. In the category of low-cost...CAD...Blueprint is a newcomer that deserves serious consideration." Mike Markowitz, MacUser, July, 1990.

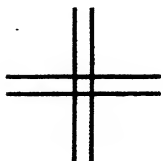
"Blueprint does a very good job of handling double-line intersections, a problem that disqualifies many other programs from serious consideration by architects. The interface is also comfortable to work with." Doug Houseman, MacWorld, July, 1990.

"Blueprint's documentation is as easy to use as the program itself.... Blueprint [is] a good value. It will best suit those who require reasonably priced precision drawing tools--[tools] lacking in MacDraw-like packages." Victor Elgohary, MacWorld, February, 1990.

As seen in MacWorld, July, 1990:

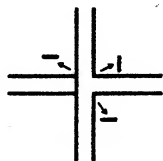
## INFO ON INTERSECTIONS

Architects work continually with double-line intersections. When picking software, be aware that some programs handle intersections more conveniently than others.



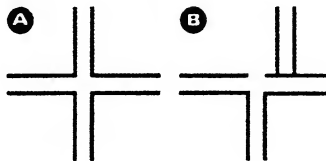
### The Starting Point

A double-line tool creates two sets of parallel lines.



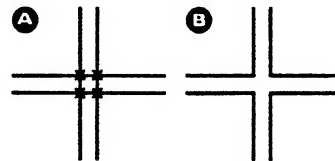
### Manual Trimming

Most programs require you to trim intersections manually. This involves cutting eight joints, and then deleting the four excess line segments.



### The Joy of Joining

Some programs—Blueprint, Archi-trion, MacBravo, and MicroStation Mac—offer a one-step Join command. As with manual trimming, however, the result of this operation is an assemblage of eight separate line segments (A). If you resize a room, for example, repositioning one of the walls, you must go back and manually adjust the intersection (B).



### State of the Art

MicroStation Mac and Blueprint are the only Mac programs to take the final step, adding a special Intersect tool. The software understands intersections marked with this tool as intersections (A); move a wall, and the rest of the intersection readjusts. When the design is set, deleting the intersection markers and extra line segments is a simple task (B).





# Price List

## Current Prices and Releases

### Product Subject to Availability

|                                          |                                                  |           |          |
|------------------------------------------|--------------------------------------------------|-----------|----------|
| <b>MiniCad+ 3.0</b>                      | 2D&3D CAD Application .....                      | \$795.00  | \$ _____ |
| MiniCad+ bundled with Kurta Tablet ..... |                                                  | \$1399.00 | \$ _____ |
| Tutorial for MiniCad+ 3.0 .....          | Mike Meyer Hypercard <i>available soon</i> ..... | \$99.00   | \$ CALL  |
| MiniCad+ Demo .....                      | Manual and Disks .....                           | \$19.00   | \$ _____ |
| <b>BLUEPRINT</b>                         | 2D only CAD Application .....                    | \$295.00  | \$ _____ |
| The Blueprint Tutorial .....             |                                                  | \$89.00   | \$ _____ |
| Blueprint Demo .....                     | Manual & Disks .....                             | \$19.00   | \$ _____ |
| <b>AZIMUTH</b>                           | Mapping Program .....                            | \$395.00  | \$ _____ |
| Azimuth Demo .....                       | Manual & Disks .....                             | \$19.00   | \$ _____ |
| <b>Plotter Drivers</b>                   | .....                                            |           |          |
| MiniCad Plot Professional .....          | Customized MacPlot Plotter Driver (A-E)....      | \$300.00  | \$ _____ |
| MacPlot 3.0 Professional .....           | Supports A thru E size plotters. ....            | \$399.00  | \$ _____ |
| <b>Cadmover</b>                          | IGES and AutoCad translator. ....                | \$495.00  | \$ _____ |
| <b>StrataVISION 3D</b>                   | Sophisticated 3D rendering .....                 | \$399.00  | \$ _____ |

Total Units \_\_\_\_\_

Sub total \$ \_\_\_\_\_

#### Shipping

+

|           |         |          |
|-----------|---------|----------|
| demo only | \$3.00  | \$ _____ |
| 1-3 Units | \$9.00  | \$ _____ |
| 4-5 Units | \$12.00 | \$ _____ |
| 6-9 Units | \$16.00 | \$ _____ |

#### Delivery

+

|                                                     |         |          |
|-----------------------------------------------------|---------|----------|
| UPS Blue Label (2nd Day Delivery)                   | \$6.00  | \$ _____ |
| UPS Red Label (Overnight Delivery)                  | \$12.00 | \$ _____ |
| Outside the United States (Call or write for terms) |         |          |

=

Grand Total \$ \_\_\_\_\_

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Street: \_\_\_\_\_ Suite/Apt: \_\_\_\_\_

City: \_\_\_\_\_ State/Country: \_\_\_\_\_ Zip: \_\_\_\_\_ Warranty #: \_\_\_\_\_

Payment: ☐ COD ☐ Check/Money Order ☐ VISA/Master Card Card Exp date: \_\_\_\_\_

Card Number \_\_\_\_\_

Signature: \_\_\_\_\_ Company Name: \_\_\_\_\_





# MacUser

CAD

## Blueprint

**The maker of MiniCad now has a solid entry in the low-priced-CAD market.**

◆ Blueprint is a 2-D-CAD program with features that, as the name implies, are particularly useful for architectural drafting. The program takes up only 590K on a hard disk and runs comfortably with 1 megabyte of RAM, making it a good choice for users on a budget.

**DRAWING TOOLS** Blueprint opens to an uncluttered display with a fixed-size drawing window, two floating tool palettes, and a menu bar with some unusual symbols. One palette is a standard set of drawing tools, and the other is a set of constraints that modify these tools. One menu heading, a delta symbol ( $\Delta$ ), includes items for changes (rotate, move, send, align); another menu (headed by the cryptic symbol  $=$ ) includes items for layering, grouping, assigning classes, and creating symbols. These are the same menu markers Graphsoft uses in Azimuth (see April '90, page 76) and MiniCad+ (see December '89, page 67), which makes these symbols consistently non-standard in all Graphsoft products.

Blueprint's drawing window, unlike those of many Mac drawing programs, does not have scroll bars. Instead you use the "pan" tool (a hand cursor) to grab your drawing and shift it around. You use arrow keys to jump up or down, or left or right, half a screen at a time. The screen automatically scrolls as you draw beyond its edges. Zooming is simple: Click on the Zoom In or Zoom Out icon, and drag a rectangle around any desired area to reduce or enlarge it by a factor of 2. There are keyboard shortcuts and modifiers to change the zoom factor to 4, but there is no on-screen indication of the current magnification — an omission I found incomprehensible; you should always know your current viewing size, especially in a CAD package. This is made worse by the absence of any rulers at the edges of the drawing.

Blueprint supports one geometric entity that is missing from many drawing

programs: the point, or locus. It is particularly useful for surveyors, cartographers, and other drafters who work with precisely located reference points. You can snap any object to a point, which makes working with reference points easier.

Blueprint's treatment of color ranks with the best I have seen in any drawing program. With an 8-bit-video card you have access to the system palette of 256 colors. Colors can be separately assigned to the outline of an object, its solid fill, or the foreground and background of any monochrome fill pattern. There are 72 fill patterns; 36 of them can be edited and changed — they're saved along with the drawing. You can also assign one color to all the objects on a layer. Unfortunately, the beautiful color palettes are stuck two levels down in a hierarchical menu — they would be easier to use if they were tear-off or floating palettes.

Along with a number of layers limited only by your available RAM, Blueprint lets you create and manipulate object "classes." Dimensions are a class by default, but you can create classes such as "electrical fixtures," "hex nuts," or "parking lots." You can hide or gray out members of a class by using easily accessible dialog boxes.

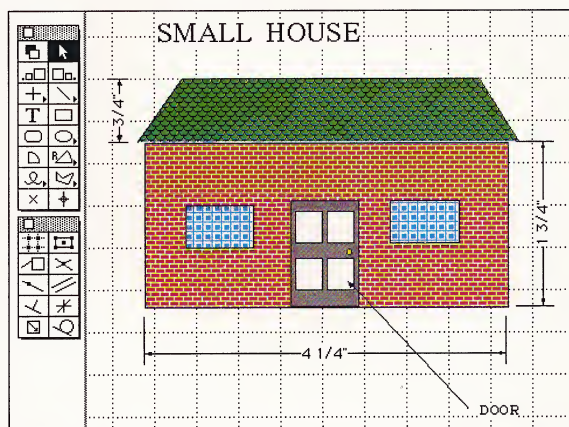
Dimensions in Blueprint are not associative; that is, the text does not automatically change when you resize the object it refers to. Dimensions are "autosized," however; if you select the dimension as well as the object when you resize, the dimension text will reflect the change.

**GETTING IT ON PAPER** Blueprint supports very high precision, both for the drawing itself and on the output device. On a Linotronic or similar imagesetter, the program can deliver resolution of up to 2,400 dpi. Since the standard PICT format cannot save data with such precision, Blueprint also offers the option of exporting drawings in EPSF, so your drawings can be pasted directly into page-layout programs without distortion or loss

of accuracy — a real plus.

The MiniCad plotter drivers designed to work with Blueprint are sold as a separate \$300 package, which saves money for users who do not intend to use a pen plotter (although some competing products include plotter drivers free). On the other hand, a DXF translator (which imports or exports drawings in the format used by AutoCAD) is built into Blueprint at no additional cost.

Blueprint ships with a 330-page user manual in a three-ring binder and two disks of sample files and symbol libraries.



Blueprint is a midrange 2-D-CAD program from Graphsoft, maker of MiniCad+. Its control over colors as well as pattern fills is excellent. It's reasonably priced and performs well even on 1-megabyte machines.

ies. The manual provides a glossary and a comprehensive index, but its pagination is confusing (for example, 3A.34b, 3A.7, 3H.17, 4.11).

**THE BOTTOM LINE** In the category of low-cost (less than \$800), Mac 2-D-CAD programs designed to run on systems with only 1 megabyte of memory, there are many excellent products: Canvas 2.1, Dreams, and PowerDraw, for example. Blueprint is a newcomer that deserves serious consideration.

— Mike Markowitz

### Get Info

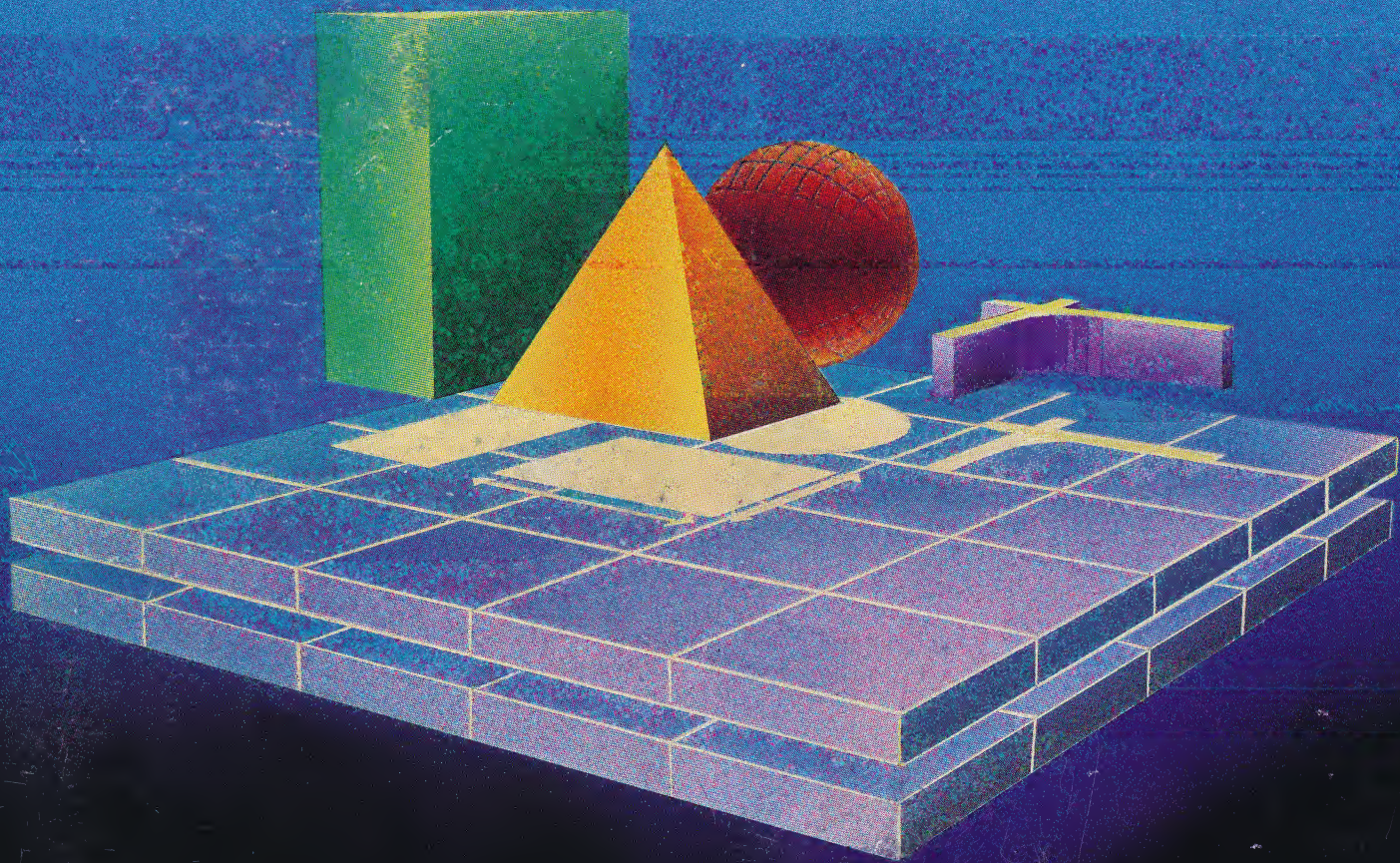
#### Blueprint

Published by: Graphsoft, 8370 Court Ave., Suite 202, Ellicott City, MD 21043; (301) 461-9488.  
Version: 1.0V6.  
List Price: \$449.



# *MiniCad+*<sup>TM</sup>

*Computer Aided Design and Analysis*



 *Graphsoft*

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# MiniCad+™ 3.0

MiniCad+ 3.0 breaks the CAD barrier to set a new standard in integrated CAD and analysis. With new technology and a new level of design integration, MiniCad+ forges the path for professional database CAD on the Macintosh. With MiniCad+ 3.0, the real-world design process is made easy.

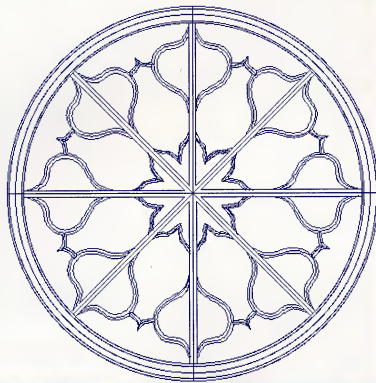
MiniCad+ has set out to solve a problem faced by the architects, engineers, designers, space planners and other professionals who use CAD: how to track supplies, prices, costs and other information while staying within the drafting window. MiniCad+ 3.0's solution has been the addition of the database/worksheet to an already advanced comprehensive CAD package.

MiniCad+ 3.0 excels in five distinct yet interrelated areas: 2D, 3D, integrated database/spreadsheet capabilities, artificial intelligence, and programmability. It includes a DXF translator and EPS compatibility with Pagemaker.

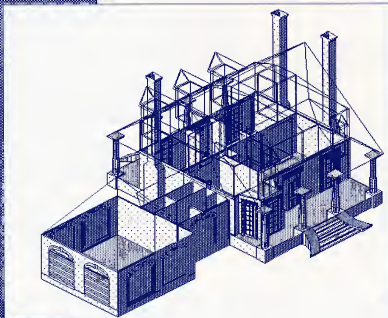
MiniCad+ 3.0's built-in database/spreadsheet allows attaching attributes to a graphic object, such as size, price, color, brand or serial number. These attributes travel with the object as an integral part of it that can be accessed at any time. Further, like traditional relational databases, the MiniCad+ 3.0 database allows you to have several distinct groups of information attached to the same file. MiniCad+ 3.0 also offers a worksheet. This worksheet can function as both an Excel®-like spreadsheet and as a database. Use the worksheet to access mathematical data about your drawing and to do calculations based on that data.

MiniCad+ 3.0 has all the 2D features associated with Macintosh CAD. The addition of the smart cursor, an artificial intelligence device that can be turned on or off, enhances the ease and precision of 2D drafting by providing verbal and

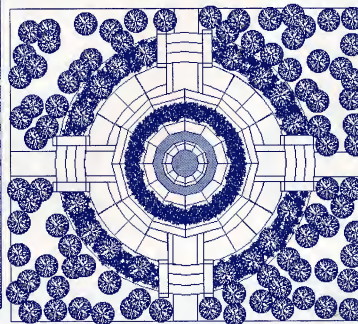
Create complex duplications of arrays such as matrix for polygons or circular for a cathedral rosette.



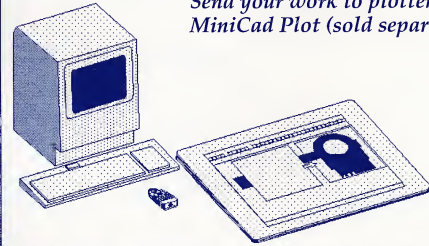
Turn 2D floor plans into 3D models, then "Enter group" to return to the 2D floor plans to make changes. "Exit group" and see the floorplans updated automatically in the 3D drawing. Switch back and forth from 2 to 3-D as much as you like.



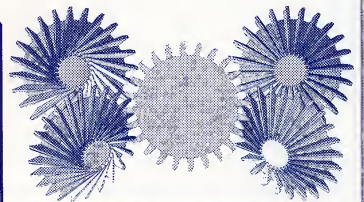
Landscaping can have a whole new meaning when you use a combination of symbols, database and worksheet. Perform area calculations to include mulching and ground cover costs. Create plant symbols that contain scientific and popular names, cost, growth & care information. Use the spreadsheet to obtain information from your drawing and generate reports and billings easily. MiniCad+ takes drawing and business by the roots for landscaping or any CAD design project.



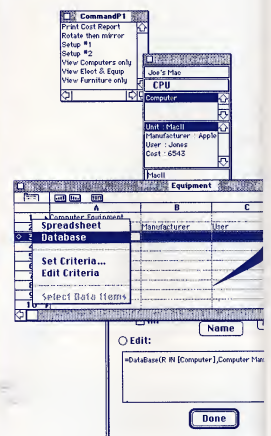
The Kurta Tablet offers direct digitizing. Your screen stays in registration while you zoom and pan on the tablet or the screen. Send your work to plotters using MiniCad Plot (sold separately)



MiniPascal allows you to create smart templates that do all the work for you. Organize them into a command palette.



'Command palettes' execute procedures with the touch of Assign data records, names, c the 'Records Palette.' Generate reports from your d worksheet -- it's more than ju Use push button code generat





graphical cues about snap points, endpoints, midpoints and alignment points, among others.

MiniCad began years ago as one of the only 3D CAD products on the Macintosh. MiniCad+ 3.0 continues the 3D tradition, offering 3D modelling right in the 2D window. Simply take any 2D object and extrude it into a 3-D wire frame or hidden surface which can then be rotated, rendered and ported into high-end rendering programs.

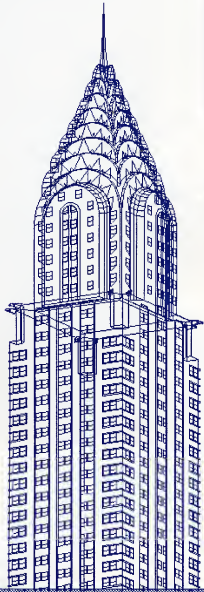
MiniCad+'s programming language allows the user the opportunity to create his or her own custom routines.

MiniCad+ is the price/performance leader in Macintosh CAD. No other program can match its combination of power, features, and ease-of-use. An award-winning CAD program, MiniCad+ has allowed thousands of design professionals to streamline and improve their creative process. It is this dedication to quality technology that has for years made MiniCad+ a worldwide Macintosh CAD choice.

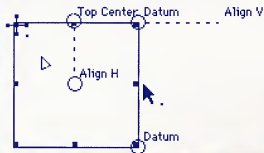
MiniCad+: \$795.00 Demo: \$19.00

30-Day Money-Back guarantee

Control complex drawings using layers, classes, enter group & name object. Set visibilities on all of the above.



Screen hints offer you your own safari guide through MiniCad+.

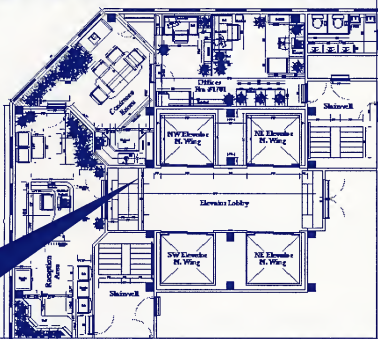


Use them, or turn them off. When you use screen hints you receive verbal and graphic prompts from your cursor as you create and manipulate objects. Get instant information on alignments, intersections, endpoints, and more..

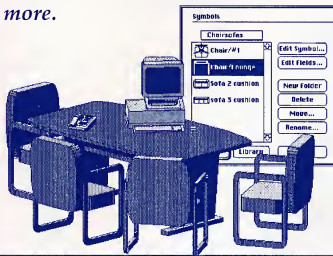
# MiniCad+™

## Graphsoft 3.0

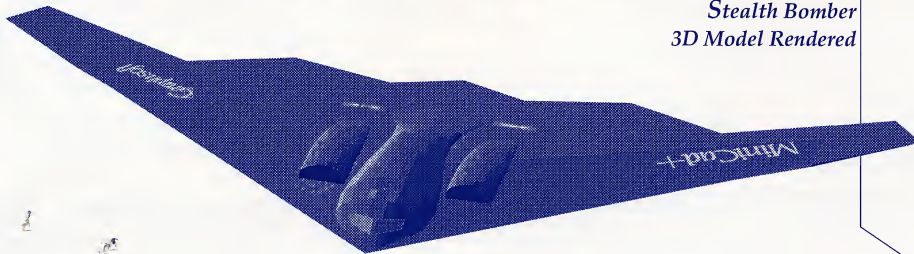
Simple or complex the mouse. Classes and more from database with the spreadsheet. on.



Symbols: Assign color, and registration store alpha numeric data, HFS filing. Do cost counts and more.

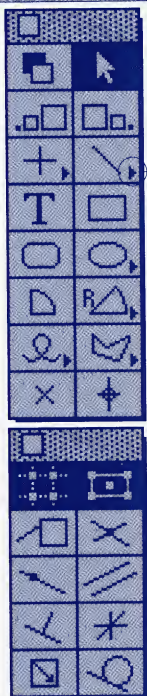


Stealth Bomber  
3D Model Rendered

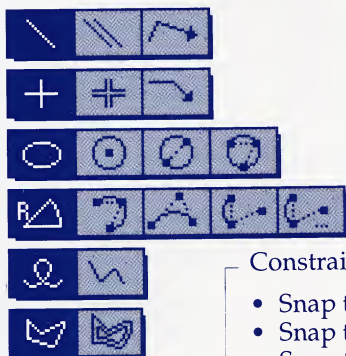




# MiniCad+™ 3.0



Pop up Tool Icons



Constraint Palette

- Snap to Grid
- Snap to Point
- Snap to Surface
- Snap to Intersection
- Snap to Distance
- Constrain Parallel
- Constrain Perpendicular
- Constrain to Angle
- Constrain Symmetrical
- Constrain Tangent

Color

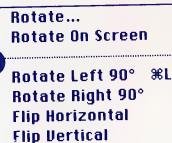
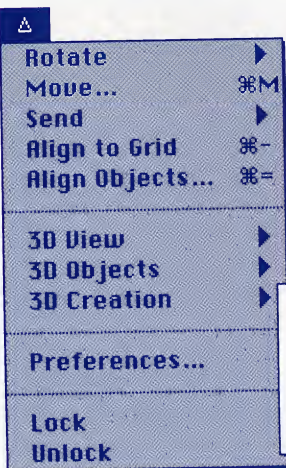


Use all 256 colors if you have an expanded color video card.

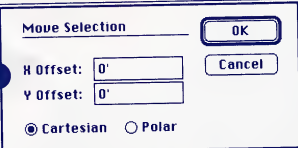
Data Palette



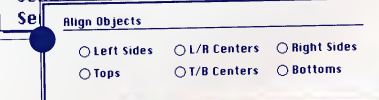
Command Palette



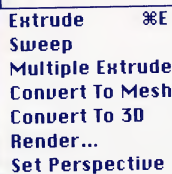
Rotation can be as fine as °, ' and " for objects and ° for text. Menu selections make other operations a one step process.



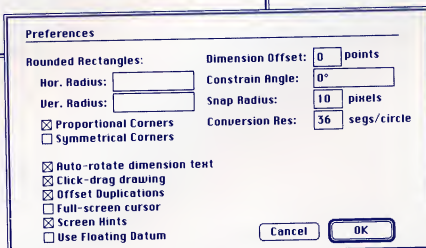
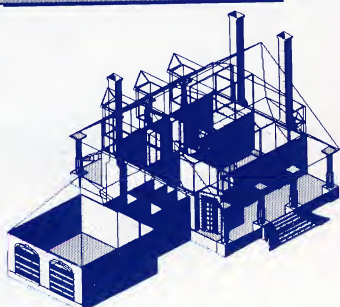
If a mouse is not precise enough, move an object precisely in cartesian or polar coordinates.



Align objects quickly with each other or a locus point.



MiniCad's 3D is so easy to use you only need try it once to get hooked. Most 2D menus and 2D tools can help you create 3D objects. Render in hidden line, color, isometric and perspective.



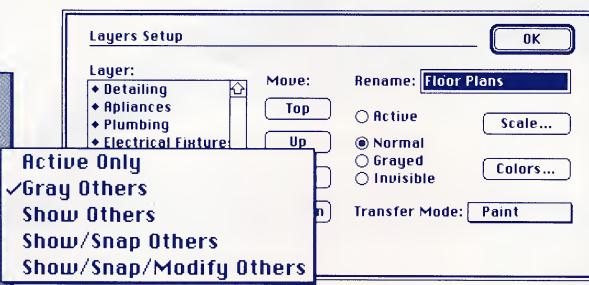
Customize the look and feel of your documents by making selections in the preferences dialogue box, then saving a file to open as your template with all the settings preserved.

Layers  
Set Layer  
Layer 0  
  
Group  
Ungroup  
Enter G  
Exit G  
Top Layer  
  
Classes  
  
Create  
Select  
Symbol  
Link To

Page  
  
Normal  
Fit To Page  
Save U  
  
Snap to  
Set Grid  
Set Origin  
  
Scale  
Units  
Drawing  
  
Tablet  
Thin Line  
✓ Tool Path  
✓ Constraints  
✓ Data File



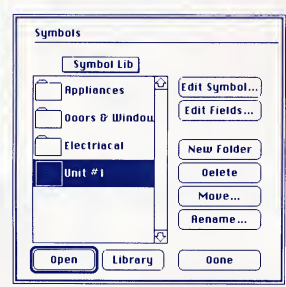
- Layers...
- Set Layer
- Layer Options
- Group
- Ungroup
- Enter Group
- Exit Group
- Top Level
- Classes...
- Create Symbol...
- Select Symbol...
- Symbol To Group
- Link Text to Record



Set visual attributes, scales, transfer modes and colors for layers.

Popup menu quickly activates any layer for editing.

Enter and Exit Group allows editing within grouped objects or symbols. Edit in places where once it was taboo.



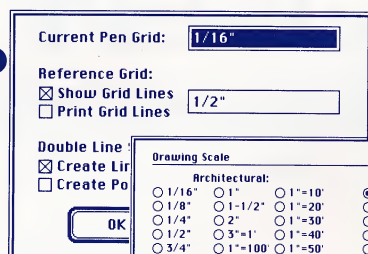
- Create classes within a layer and then turn them on or off, creating layers within layers.

Create, store, and edit symbols in an HFS type environment. Rotate symbols as you place them. Symbols automatically rescale to fit the layer scale. Symbols can include text fields and registration points.

- Page
- Normal Scale
- Fit To Window
- Save View...

Besides the zoom tools in the palette, MiniCad+ offers a wide range of viewing options. MiniCad+ also allows the user to save and recall views instantly.

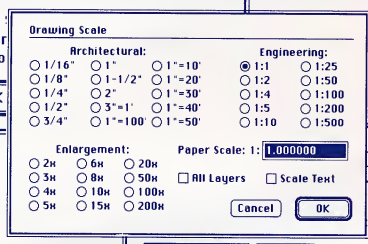
### Unit #1 Closeup



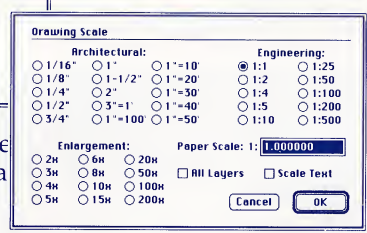
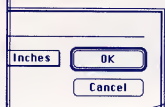
With set grid you control the pen grid snap to avoid rounding problems. Wall thicknesses or parallel line offsets can be defined.

- Scale...
- Units...
- Drawing Size...
- Tablet
- Thin Lines
- Tool Palette
- Constraint Palette
- Data Palette

Drawing size lets you choose the size of your drawing. By using the Chooser you can select a plotter driver, then via the Page Setup you can redefine the matrix to read as A thru E size drawings instead of letter, legal or tabloid size sheets. MiniCad+ displays the image or print area measurements, not the paper size.

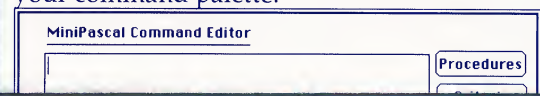


Use units popup menus to select quickly from a wide range of units and accuracies. If you can't find the unit of measure you are looking for, create it with the custom units dialog box.



- Run Macro...
- Record Format...
- Worksheet...
- Command...
- Recalculate
- Paste Criteria...

Write your own MiniPascal procedures or use the push button code generators to create your command palette.





**Edit**

Undo ⌘Z

---

Cut ⌘H

Copy ⌘C

Paste ⌘V

Clear

---

Duplicate ⌘D

Select All ⌘A

Reshape ⌘R

---

**Smoothing** ▶ None

Mirror

Scale Objects.. Bezier Spline

Cubic Spline

Standard Macintosh Interface.

*Option* Duplicate invokes array duplication, a very powerful set of definable duplication options.

**Duplicate**

Rows: 1 Columns: 1 Alteration

☒ Rectangular Array ☐ Circular Array

☒ Resize Duplicate(s)

H Scale: 1.0

V Scale: .9

☒ Rotate Duplicate(s)

Angle: 0

Offset

H Offset: 0"

V Offset: 0"

☐ Next Mouse

Cancel

**Reshape Box**

Size:

Height: 7.8

Width: 13/16"

Position:

H: -2 9/16"

Point V: 1 1/4"

Align Point To: ☒ ☐ ☐ ☐

☐ Next Click

Cancel OK

Scaling of individual objects vs the entire drawing.

**Scale Objects**

H Scaling Factor: 1.0000

V Scaling Factor: 1.0000

Cancel OK

Reshape allows point by point editing of polygons. *Option* Reshape allows reshaping by data box.

Each data box is appropriate for the kind of object being edited at the time.

**Tool**

Dimension H... ⌘H

Dimension V... ⌘K

Diagonal Dimension

Angular Dimension

Witness Lines

---

Add Surface

Clip Surface

Intersect Surface

Convert to Lines

Convert to Polygons

Combine Into Surface

---

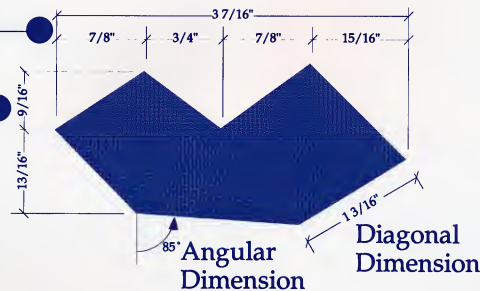
Join ⌘J

Trim ⌘T

Fillet...

Intersect ⌘I

Hatch...



Convert any object or polygon into a series of lines.

Convert any set of enclosed lines into a polygon.



**Hatch**

Untitled Hatch

Angle: 45

Spacing: 0.125

Gap Width: 0

Lines: 1

☐ Crosshatch Rename...

New Remove Cancel OK

Create, collect and name your own custom hatch and crosshatch patterns.

**Set Thickness**

✓

1

2

3

4

5

6

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98

99

100

**File**

New

Open...

---

Close

Save

Save as

Save as

Revert

---

Import...

Export...

---

Page Set

Print...

---

Quit

Print

Horizontal

Vertical

OK R

Data  
cons  
also



Paste Function...  
 Custom Selection...  
 Custom Tool/Attribute...  
 Custom Visibility...

Database Headers  
 Number...  
 Alignment...  
 Border...  
 Column Width...  
 Preferences...  
 Insert...  
 Delete...  
 Print...

VS1

Spreadsheet Database

Set Criteria...  
 Edit Criteria  
 Select Database Items

Tool/Attr  
 Functions

Tool Dialog

☐ Symbol: Set

☐ LineWeight:

☐ MarkerSize: 6

☐ LineStyle:

☐ Layer: Untit...

☐ ArrowHead:

☐ Class: None

☐ PenPattern: None

☐ Record: Parts

☐ FillPattern:

☐ TextFont: London

☐ FillFore:

☐ TextSize: 12

Set thickness of lines in points, mils or millimeters

Choose from a wide variety of line and marker styles

\*DEFAULTS\*

None

Hardware

ModelNum: 11-  
 Serial Number: SN-  
 Manufacturer: User  
 Location: M-

View Field

Name: ModelNum

Type: ☐ Integer ☐ Number ☐ Boolean ☒ Text

Default: M-

OK Cancel

CreatFormat

Name: Hardware

| Field Name    | Type | Default Value |
|---------------|------|---------------|
| ModelNum      | Text | M-            |
| Serial Number | Text | SN-           |
| Manufacturer  | Text |               |
| Location      | Text |               |

Edit... Remove OK Cancel

Databasing has never before been this dynamic. Edit the drawing and the database updates. Generate reports in a variety of formats.

Text

Font  
 Size  
 Style

Left  
 Center  
 Right

Single Space  
 1-1/2 Space  
 Double Space

lower case  
 UPPER CASE  
 Title Caps

All System Fonts are available under this menu

Set Size...

6  
 8  
 10  
 12  
 14  
 16  
 18  
 20  
 24  
 28  
 36  
 48  
 72  
 96  
 144

Set Text Size

Point Size: 10

OK Cancel

Set any size of text or arrowheads from 1 pt to 144 pt text. 'T' indicates current text size while the ♦ indicates the current marker size.

Standard Macintosh Interface.

Template...

Import & Export in a variety of formats.

PICT  
 Text Format  
 DXF  
 Encapsulated Postscript  
 Database  
 Worksheet

MiniCad - 3.0B

Jim's PDIS...

Error OutPut  
 MiniCad Startup  
 MiniCad 3.0 Beta  
 Text

Eject  
 Drive

Save export document as:

Worksheet 1.export

Export  
 Cancel

☐ All Rows ☒ Selected Rows Only

Format: ☒ comma  
☐ Tab  
☐ Merge  
☐ DIF  
☐ SYLK

Page Setup allows the user to define the resolution for output and detects the resolution capabilities of your output device.

Resolution

300

300

set Normal

Fill

None

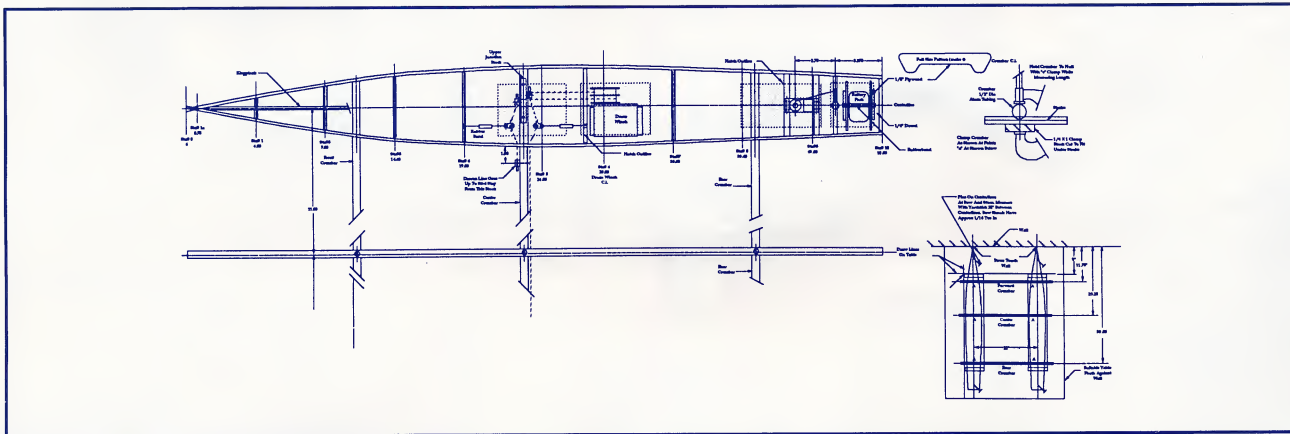
Editable

Non-editable

display bar at the bottom of the screen allows keyboard data entry for training and/or defining an object while drawing with the mouse. It can be used to monitor your object's attributes as you draw.







### Mike Meyer's Hypercard Tutorial

The Mike Meyer Hypercard tutorial offers detailed training on MiniCad+. This multi-disk tutorial allows you to go back and forth between the tutorial itself and MiniCad+ so you can practice what you have learned. It is divided into two parts: the first takes you through all the features in MiniCad+, the second takes you step-by-step through building a house and modelling it in 3D. Designed by an architect and long-time MiniCad user, the Mike Meyer hypercard tutorial walks you through the program.

### MiniCad+ Demo Package

The MiniCad+ demo package includes an interactive demo and a demo manual. The demo itself includes everything in the full MiniCad program except the ability to save, print, and use the clipboard. The price of the demo is refundable when you buy the program direct from Graphsoft.

### MiniCad Plot

This customized MiniCad+ plotter driver by Microspot Ltd., a menu based program, is fully compatible with MiniCad+. Features of the MiniCad+ plotter driver include parameter files for special formats, plotting up to 1060 dpi in non-72 dpi mode, multiple pen and color selection, single or double cross hatching, and continuity with MiniCad+ upgrades. A through E size.

## MiniCad+™ 3.0

### Features: .....

- ☛ Floating, Constraint, Command, Records, and Tools Palettes
- ☛ Full use of the Macintosh interface
- ☛ Associative auto-dimensioning
- ☛ Built-in DXF translator
- ☛ Extensive manual with separate tutorial; newsletter to registered users
- ☛ Hierarchical symbol libraries; access symbols from any MiniCad+ document
- ☛ Save view
- ☛ Object by object color/ 256 colors
- ☛ 3D in 2D window
- ☛ High precision
- ☛ Integrated database/spreadsheet
- ☛ Produce reports, bills of materials
- ☛ Programming language: write your own procedures or tap in to pushbutton code generators
- ☛ Layers/Scale by Layer/Snap through layers
- ☛ Fillets; bezier and cubic splines
- ☛ Double line tools with auto-join and cleanup
- ☛ Text rotation by degrees
- ☛ Plus more...







*Engineering and Professional Computer Applications*

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Dear MiniCad Customer:

Thank you for your interest in MiniCad+. We would like to take this opportunity to tell you more about our program. We are proud that MiniCad+ has been a top-rated CAD program in *MacWorld* magazine for two consecutive years.

MiniCad+ occupies a unique niche in the CAD marketplace. It is a fast, reliable 2D/3D program that is easy to use and comes with a built-in database and spreadsheet, as well as a smart cursor and a programming language. No other program comes with so many options at such high quality for so low a price. As an *InfoWorld* review stated, MiniCad+ is like a "Volkswagen Beetle with a Porsche engine, suspension, and transmission....when it comes to drawing and editing features, MiniCad+ can compete head-to-head with the most muscular packages on either Mac or MS-DOS platforms." Reviewing MiniCad+ 3.0 for *Apple Business Magazine*, Mark Wilson concluded that MiniCad+ "puts the rest to shame on performance and price. The leading edge of CAD for any platform" (September, 1990). Jerry Borrell reiterated this praise when in a recent *MacWorld* article he called MiniCad+ "arguably the best product for drafting on the Mac" (August, 1990), and Joe Greco of *Macintosh-Aided Design* concurred, calling "MiniCad+...one of the most complete CAD packages available on any computer platform" (July, 1990). It is this power and versatility which have for years made MiniCad a best-selling Macintosh CAD product.

MiniCad+ comes with a built-in DXF translator which connects it with the AutoCad/PC world. Encapsulated postscript allows export of MiniCad+ files to Pagemaker and Quark at high resolution. A fully functional, high precision program, MiniCad+ contains all the standard features required in a power CAD package: a MacLike interface, unlimited layering (with appropriate memory), a hierarchical symbol library that allows you to group symbols by type for handy reference, bezier and cubic splines, a floating palette for more drafting room and a constraint palette for defining relationships between objects.

Add to that our 3D capability, the potential for power users to write their own routines to customize the program and the ability to store and manipulate data in your drawing, and you have a powerful drafting tool.

Enclosed is our literature. I hope you will take the time to look at it. We support the product through a technical services department that is open 9-5:30 M-F EST. If you have questions after perusing the literature, we will be glad to answer them for you. Please call us at 301/461-9488.

Sincerely,

Graphsoft

*Graphsoft 8370 Court Ave. Suite 202, Ellicott City, MD 21043 • 301-461-9488*





Engineering and Professional Computer Applications

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## Let others speak for us:

*Apple Business* Verdict: ☆☆☆☆ September, 1990

*MacUser Magazine*:  December, 1989

"Puts the rest to shame on performance and price. The leading edge of CAD on any platform." Mark Wilson, *Apple Business Magazine*, September 1990

"MiniCad+ is a fully-fledged information production environment that imports and exports almost everything without the need for add-on modules and is very stable and reliable...It sets new standards in its two-dimensional drawing environment and has a beautiful spreadsheet, as well as a full three-dimensional modeller and extensive customisation flexibility." Mark Wilson, *Apple Business Magazine*, September 1990

"MiniCad+ 3.0 is an exceptional product at a price which makes it available to all...it has by far the best price/performance payoff of any CAD package on any platform, and arguably the best all-round performance." Mark Wilson, *Apple Business Magazine*, September 1990

"Superb intelligent cursor system and construction tools. Sophisticated spreadsheet, three-dimensional modeller and customisation capabilities built-in." Mark Wilson, *Apple Business Magazine*, September 1990

"MiniCad+ [is] arguably the best product for drafting on the Mac." Jerry Borrell, Editor, *MacWorld Magazine*, August, 1990.

"MiniCad+... is one of the most complete CAD packages available on any computer platform." Joe Greco, Editor, *Macintosh-Aided Design*, July, 1990.

"MiniCad+ ... is a powerful performer, and its programmability and spreadsheet features separate it from other CAD programs, regardless of price." Peter Mengaziol, *MacUser*, Dec 1989.

"You get alot for your money with MiniCad+. The program competes with high-end 2-D drafting programs...and offers solid additional features in its Minipascal language, drawing-linked ...spreadsheet, and 3-D object generation." Charles Seiter, *MacWorld*, Nov 1989.

"I understand this is an extremely complex piece of programming, and I have been extremely impressed with the care and thoroughness you have taken to insure this is an efficient and useful tool to design and draw with." Charles Stembridge, MiniCad+ user.

"The interface has just gotten better through all the versions, allowing intuitive use after a very short usage but masking a wealth of drawing power that can be tapped when the program is mastered....A very good program with excellent value for the dollar." Ross J. Slade, *NCMC Bulletin The Official Bulletin of The National Capital Macintosh Club*. Vol 5, No. 5.

"From initial design set-up to final drawing production, MiniCad+ is powerful, yet easy to use and flexible enough to accomodate the needs of different types of offices; the spreadsheet function is just one of its features that adds considerable value to its use as a design tool." Daniel Earle, *The Landscape Architect and Specifier News*.

**Graphsoft 8370 Court Ave. Suite 202, Ellicott City, MD 21043 • 301-461-9488**





Engineering and Professional Computer Applications

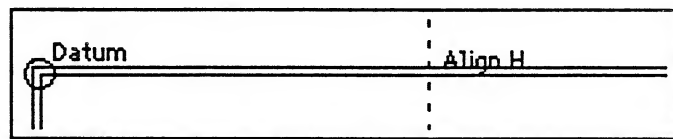
## New in the MiniCad+3.0 CAD and Analysis Program

The new MiniCad+ 3.0 adds an integrated relational database, unique in the Macintosh CAD world, and artificial intelligence to award-winning 2D/3D CAD. The MiniCad+ program now encompasses five exciting areas: 2D, 3D, the database/spreadsheet, the programming language and the "Smart Cursor." In addition, MiniCad+ ships with a built-in DXF translator and is EPS compatible with PageMaker.

The relational database allows attaching any needed information to objects in your CAD drawing. These records, which stay with the object as a part of it, can be accessed through a Data Palette. An office chair, for example, can carry with it information about its type, cost, P.O number, or size. This information becomes as much a part of the chair as an arm or a leg. As in traditional relational databases, several distinct groups of information may be attached to the same file. For example, if a computer is both a piece of furniture and a piece of capital equipment, both data sets can be accessed simultaneously. Unlike standalone databases, however, the MiniCad+ 3.0 database is tailored to the CAD

spreadsheet (called the worksheet) is an ideal tool for facilities management, design, and all other fields where costs and data must be tracked, compared, and analyzed.

The **Smart Cursor** uses artificial intelligence to assist the user in creating high precision drawings. It provides graphic cues and messages about relevant snap points, alignment points and more, eliminating guesswork from your drawing. Turn it on or off as you need it.



Standard 2D features in MiniCad+ 3.0 include a constraint palette, floating palettes, hatching, mirroring, fillets, cubic and bezier splines, join with auto-clean, advanced auto-dimensioning, zoom, unlimited layers, a hierarchical symbol library, circular arrays, add, intersect and clip surface, trim lines, editable arrowheads, lines, and fills, keyboard, dialogue box or menu modes of operation and full use of the "user friendly" Macintosh interface including fill patterns, bitmapping and advanced text capabilities.

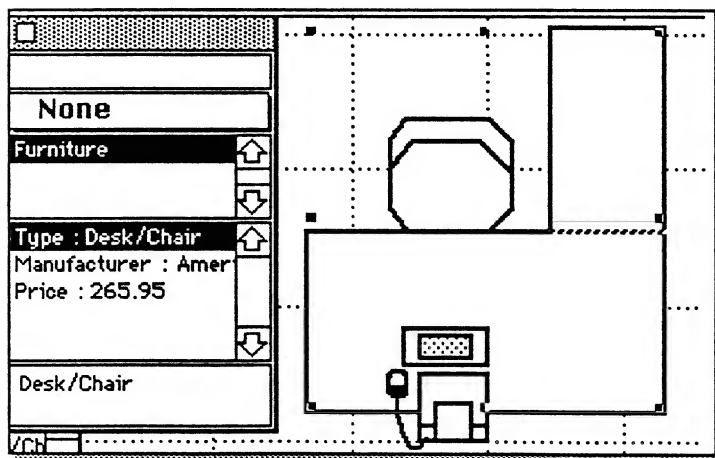
The smart cursor, which you can turn on or off, indicates relevant points on your drawing. Here, the smart cursor provides a guide line exactly 16' from the datum, to which the next object will snap.

MiniCad+ 3.0 continues a Graphsoft 3D tradition, offering 3D modelling right in the 2D window. You can take any 2D object and extrude it into a 3-D wireframe or hidden line, rotate it, set a perspective, render it and port it into high-end rendering programs such as StrataVision and Renderman (available Fall, 1990.)

MiniPascal, MiniCad+'s pascal-based programming language, lets advanced users write their own macros. Macros also can be purchased through third-party vendors.

**MiniCad+ 3.0 program: \$795.00.**

**Demo: \$19.00**



The Data Palette allows you to keep records about a graphical object right in the drawing area. You can turn the Data Palette on or off.

user, emphasizing the object-oriented features a design professional works with. MiniCad+ 3.0 also includes a hotlinked Microsoft® Excel-like spreadsheet that can perform calculations by accessing mathematical information from a design the user has created. The database/



# MiniCad+ Offers:

## Accuracy:

- Standard units of Feet, Inches, mm, cm, meters
- User-defined customizable units to nine decimal places
- Angular Accuracy in degrees, minutes, and seconds
- Angles and Distances in degrees, minutes, and seconds
- Rotation by degrees, minutes and seconds
- Nine decimal place accuracy
- Zoom-in and zoom-out accurate to 1000n.

• Reads specified Kurta, Summagraphics and GTCO tablets to 1000 dpi

## Ease Of Use:

- Standard Macintosh interface
- 2D, 3D, Database, and spreadsheet in same window
- Enter data via mouse, dialogue box, or keyboard
- Movable point coordinate system is fast and accurate:  
"An advantage cited... is the exceptional speed of the program...this speed makes it practical to use on less expensive platforms such as the Macintosh SE and Plus. This makes it possible...to take one of these smaller machines home and work at home when necessary."  
MFOC Newsletter
- Easily enter object attributes ( manufacturer, color, size etc) into Database
- Use Screen Hints, a combination of a smart cursor and verbal cues, to precisely locate relevant points on a drawing, such as endpoints, midpoints, tangents, intersections and more:  
"The intelligent cursor system[screen hints] in MiniCad is beyond belief. It speeds up information input five times and the surface operations are extensive enough for anyone." Panos Christodoulides as quoted by Mark Wilson, Apple Business Magazine.
- Duplicate objects in user-defined circular or rectangular arrays:

"The arrays are the most powerful of any program tested: Not only can they be rectangular or circular, but individual objects can be rotated to any angle as they are copied. Objects can be resized by specified increments as they are copied by the Array command, and you can make arrays asymmetrical by having the copies appear one by one as you click." Infoworld

- Create hierarchical symbol library:

"That [the hierarchical library] greatly simplified the symbol selection process. With the hundreds of symbols I've collected, it would have been difficult to remember symbol names." John Pacylowski as quoted in MicroCAD News, July, 1990

- Edit, scale, and rotate symbols

- Add, Clip, and Intersect surfaces

- Auto join with auto-cleanup: T joins, X joins, etc. One-step join command

- Trim surface:

"MiniCad+ is an example of a program with strong trim features. It can trim a series of lines along a trim line or inside a trim rectangle. It also trims lines inside or outside ovals or polygons, allowing irregular shapes to remain." Daniel Earle, Macintosh-Aided Design, August, 1990

- Fillets

- Snap to Grid

- Snap to Locus, Snap to Objects:

"Snapping is standard stuff but it's difficult to implement successfully and it has been a nightmare in most CAD packages because you couldn't alter the snapping criteria in mid-draw. But MiniCad+ allows these and other features of the program to be activated mid-process by hitting one key. Snaps can be turned on or off or varied mid-draw--other programs always forced you to drop your line, say, change your snap, and remodify it." Mark Wilson, Apple Business Magazine.

- Group/Ungroup to rotate and manipulate objects in clusters:

"The Enter Group tool is extremely powerful in the 3D context. When applied to a 3D object, that object is reduced to its original 2D components for editing." Gregory Kiss, Macintosh-Aided Design.



"There is every conceivable way of grouping and manipulating objects, including the ability to "enter" a particular group and manipulate it within its own world." Mark Wilson, Apple Business Magazine.

## Standard Features

- Integrated Spreadsheet
- Relational Database  
"For production-oriented users, possibly the single most useful addition to the features in MiniCad+ will be the built-in spreadsheet/database." Gregory Kiss, Macintosh-Aided Design
- Smart Cursor
- Programming language
- Constraint Palette
- Floating Palettes
- Database Palette
- Unlimited layers
- Symbol library
- 2 Free template disks
- Turn layers on or off, or gray them at will; snap through layers
- Object by object color
- Scale by layer
- Rescale
- Shift origin
- Continuous tracking of cursor location
- Unlimited Zoom
  - Pan
  - Save view
  - Go to View
  - Normal Scale
  - Fit to window
- Option/Paste for exact registration of drawing
- Units of Measurement conversion
- Single, Double, and Triple lines

- Constrained lines
- Leader lines
- Multiple line types and arrowheads
- Resizable arrowheads
- Thin lines
- Set line thickness
- Witness lines
- Rectangle/Square
- Rounded Rectangle
- Oval/Circle
- Circle by radius
- Circle by Diameter
- Circle by 3 Points
- Circle by 2 Points and radius
- Full Arc
- Quarter Arc
- Polygons (Single and Double line)
- Freehand lines
- Cubic Spline:  
"The MiniCad+ spline curve reshape function is ideal for landscape design." Daniel Earle, Macintosh-Aided Design
- Bezier Spline
- 36 Editable fill patterns, 72 total fill patterns
- Hatching; cross-hatching
- Send selection forward/backward
- Name object/Assign class for spreadsheet data storage
- Text — Editable in any scale — Rotatable by degree — Downloadable fonts

## Auto-Dimensioning

"One of the program's strongest suits is its comprehensive auto-dimensioning, a task that takes up an enormous amount of time when done manually. At the touch of [a] tool, dimensions can be created in straight, angular, dimensional or chain dimensional styles, and they are resized automatically when the objects are changed...."

### MacWeek

- Horizontal
- Vertical
- Angular
- Diagonal
- Orthogonal
- Chain
- Between two objects
- Auto resize of dimensions when you change object size
- Dimensioning palette provides diameter and radial dimensions.

## 3D

"The 3-D aspect is like icing on the cake. Any item that you draw can be extruded or rotated to create a solid...symbols can be three-dimensional and located relative to a plane. You have control over the location of a



single light source and the camera and viewpoint location for perspective rendering..." Ross Slade, NCMC Bulletin

"MiniCad+ has extensive facilities for 3-D objects...it may well have the best 3-D capabilities among the low-cost (less than \$1000) CAD programs." MacUser

- In 2D window
- Allows you to exploit most 2D menu tools
- Extrude/Multiple extrude
- Sweep
- Convert to Mesh
- Render
- Hidden surface/Lines
- Perspective/set distance
- Rotate (object or view)
- On screen
- X,Y, Z coordinates
- six absolute views
- Stratavision-compatible for more sophisticated rendering

## Spreadsheet

- Dynamically interactive
- Accepts any attribute of an object into the spreadsheet
- Copy and paste
- Inquiry Functions
- Alignment
- Excel-like cell picking
- Editable fonts per cell
- Accesses Database information as you wish

## Programming Language

- Use Command Palette to write macros with ease:  
"The Command Palettes let users group together a string of commands. It takes on aspects of a CAD toolkit."  
Robert Anderson as quoted in MacWeek.
- Assign key commands in single or multiple fashion
- Bring up menu items automatically
- Do reports by object names, classes or symbols
- Free basic macros available
- 3rd party macros available
- Access external files for drawing creation or reports

## Import/Export

"MiniCad+ is a fully-fledged information production environment that imports and exports almost anything without the need for add-on modules and is very stable and reliable." Mark Wilson, Apple Business Magazine.

## Import

- PICT, text
- Built-in DXF translator
- Directly reads certain digitizing tablets

## Export

- PICT, text
- Built-in DXF translator
- Output to: Imagewriter, LQ Imagewriter, Laserwriter, Plotter driver, Linotronic
- EPS compatible with Pagemaker and Quark (export only)

## Services

- Tech support M-F, 9-5:30 EST, free and unlimited
- Quarterly newsletter
- 30-day money back guarantee



## Plotters Supported by MiniCad Plot:

This listing changes periodically as new plotters are brought into the market place. Any plotter running in emulation mode of any of the following is supported by the MiniCad plotter driver. Any HPGL-compatible plotter is supported by the MiniCad plotter driver.

|                                                |                               |
|------------------------------------------------|-------------------------------|
| Advance Bryans 6210                            | Hitachi 672                   |
| Advance Bryans 6310                            | H. I. DMP 29                  |
| Advance Bryans 6320                            | H. I. DMP 40                  |
| Apple Plotter                                  | H. I. DMP 41                  |
| Benson 1062                                    | H. I. DMP 42                  |
| Calcomp 81                                     | H. I. DMP 51, 51MP            |
| Calcomp 83                                     | H. I. DMP 52, 52MP            |
| Calcomp 1023                                   | H. I. DMP 55                  |
| Calcomp 1025                                   | H. I. DMP 56, 56MP            |
| Calcomp 1040 series                            | H. I. DMP 61, 61MP            |
| Calcomp 1070 series                            | H. I. DMP 62, 62MP            |
| Calcomp 945                                    | H. I. E595                    |
| Calcomp 965                                    | H. I. E795                    |
| Colorwriter 6200                               | H. I. PC595                   |
| Colorwriter 6310, 6320                         | H. I. PC695                   |
| Epson HI 80                                    | Numonics 5860                 |
| Facit 4551                                     | Oce Graphics 1062             |
| Graphtec FD5211                                | Oce Graphics 1834/SR, 1835/SR |
| Graphtec FP5301                                | Oce Graphics 1022, G1032      |
| Graphtec MP1000                                | Roland DXY880, 980            |
| Graphtec GP1002, 1102                          | Roland DXY885, 990            |
| Graphtec GP9001, 9011, 9101, 9111              | Roland 1100/200/300           |
| Graphtec MP2000                                | Roland DPX2200                |
| Graphtec MP3100                                | Roland DPX3300                |
| Graphtec MP3200                                | ROLAND GRX300, 400            |
| Graphtec MP3300                                | Zeta 8                        |
| Graphtec MS8603                                | Zeta 824                      |
| Hewlett Packard 7220                           | Zeta 836                      |
| Hewlett Packard 7440                           |                               |
| Hewlett Packard 7470                           |                               |
| Hewlett Packard 7475                           |                               |
| Hewlett Packard 7550                           |                               |
| Hewlett Packard 7570A Draft Pro                |                               |
| Hewlett Packard 757A, 7576A                    |                               |
| Hewlett Packard 7580                           |                               |
| Hewlett Packard 7585, 7586                     |                               |
| Hewlett Packard 7595, 7596 Draft Master I & II |                               |





# Price List

## Current Prices and Releases

### Product Subject to Availability

#### MiniCad+ 3.0

|                                          |           |          |
|------------------------------------------|-----------|----------|
| 2D&3D CAD Application .....              | \$795.00  | \$ _____ |
| MiniCad+ bundled with Kurta Tablet ..... | \$1399.00 | \$ _____ |
| Tutorial for MiniCad+ 3.0 .....          | \$99.00   | \$ CALL  |
| MiniCad+ Demo Manual and Disks .....     | \$19.00   | \$ _____ |

#### BLUEPRINT

|                                     |          |          |
|-------------------------------------|----------|----------|
| 2D only CAD Application .....       | \$295.00 | \$ _____ |
| The Blueprint Tutorial .....        | \$89.00  | \$ _____ |
| Blueprint Demo Manual & Disks ..... | \$19.00  | \$ _____ |

#### AZIMUTH

|                                   |          |          |
|-----------------------------------|----------|----------|
| Mapping Program .....             | \$395.00 | \$ _____ |
| Azimuth Demo Manual & Disks ..... | \$19.00  | \$ _____ |

#### Plotter Drivers

|                                                                       |          |          |
|-----------------------------------------------------------------------|----------|----------|
| .....                                                                 |          |          |
| MiniCad Plot Professional Customized MacPlot Plotter Driver (A-E).... | \$300.00 | \$ _____ |
| MacPlot 3.0 Professional Supports A thru E size plotters. ....        | \$399.00 | \$ _____ |

#### Cadmover

|                                   |          |          |
|-----------------------------------|----------|----------|
| IGES and AutoCad translator. .... | \$495.00 | \$ _____ |
|-----------------------------------|----------|----------|

#### StrataVISION 3D

|                                  |          |          |
|----------------------------------|----------|----------|
| Sophisticated 3D rendering ..... | \$399.00 | \$ _____ |
|----------------------------------|----------|----------|

Total Units \_\_\_\_\_

Sub total \$ \_\_\_\_\_

#### Shipping

+

|           |         |          |
|-----------|---------|----------|
| demo only | \$3.00  | \$ _____ |
| 1-3 Units | \$9.00  | \$ _____ |
| 4-5 Units | \$12.00 | \$ _____ |
| 6-9 Units | \$16.00 | \$ _____ |

#### Delivery

+

|                                                     |         |          |
|-----------------------------------------------------|---------|----------|
| UPS Blue Label (2nd Day Delivery)                   | \$6.00  | \$ _____ |
| UPS Red Label (Overnight Delivery)                  | \$12.00 | \$ _____ |
| Outside the United States (Call or write for terms) |         |          |

=

Grand Total \$ \_\_\_\_\_

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Street: \_\_\_\_\_ Suite/Apt: \_\_\_\_\_

City: \_\_\_\_\_ State/Country: \_\_\_\_\_ Zip: \_\_\_\_\_ Warranty #: \_\_\_\_\_

Payment: ☐ COD ☐ Check/Money Order ☐ VISA/Master Card Card Exp date: \_\_\_\_\_

Card Number \_\_\_\_\_

Signature: \_\_\_\_\_ Company Name: \_\_\_\_\_